

Data Centre Solutions



Energy Efficient By Design

Providing High Performance
Energy Efficient Solutions for
Data Centre
Server Rooms
Communications Rooms



Data Centre Solutions... Energy efficient by design

Workspace Technology’s Data Centre Solutions division provides expert energy efficient data centre, server and communications room, solutions and services for public sector and corporate clients across the UK. Workspace Technology is committed to help clients reduce carbon emissions through the deployment of “Best Practice” energy efficient technology and design.

Workspace Technology is proud to be an approved “Endorser” for the European Commissions “Code of Conduct for Data Centre Efficiency”



Approved “Endorser” EU “Code of Conduct on Data Centre Efficiency”



Workspace Technology delivers the European Unions Code of Conduct on Data Centre Efficiency “Best Practice” through our  **ecodesign** methodology.

Best Practice Design Principals

Measurement	Without measurement it can be hard to understand why and where energy performance is poor and how to improve it. It is a recommendation of the Carbon Trust that sub-metering of high energy consumption infrastructure is implemented.
“Right Size” Architecture	Modular, scalable power and cooling architecture that allows deployment as needed. This is the crucial element for improving data centre efficiency.
Efficient Cooling Technology	The implementation of modern energy efficient cooling technologies reduces operational energy overhead. The configuration of AC system set points more appropriate to modern computer technology will have a surprising contribution to data centre energy savings.
Clear Segregated Airflow	Ensuring a clear airflow path whilst eliminating the mixing of hot and cold air through the deployment of appropriate ducting, aisle containment and airflow management technology will contribute to significant reductions in the energy demand of the cooling system.
Efficient Room Layout	An efficient room layout will facilitate the deployment of appropriate cooling, allow for a modular growth strategy and assist airflow separation. Correctly positioned grille tiles will ensure airflow to equipment inlet positions.
Efficient UPS & Electrical Installation	The installation of modern modular transformerless UPS technology significantly improves efficiency and also saves on floor space at typical operating loads. The installation of well designed power paths combined with energy efficient lighting reduces energy consumption.



Data Centre Architecture

Workspace Technology has simplified and standardised our approach to the design and implementation of data centre, server & communications room environments. We deliver EcoDesign “Best Practice” solutions in line with the EU Code of Conduct for Data Centre Efficiency.

Data Centre Infrastructure is the foundation upon which Information Technology (IT) and telecommunications networks reside. It is the “backbone” of the business, as its elements provide the power, cooling, physical housing, security, fire protection, and cabling which allow Information Technology to function. Workspace Technology applies “Best Practice” data centre design principles to maximise energy efficiency within the data centre.

Workspace Technology has simplified the architecture from which we deliver data centre infrastructure and technology to support client availability, agility, energy efficiency and business needs.

Construction... creating the space

through planning, design, installation and construction services.

Cooling... efficient cooling & airflow

deployed through a range of computer room air conditioning, free cooling technology, aisle containment and airflow management.

Protection... mission critical environments

through the installation of fire detection and fire suppression systems.

Technical... communications and technology

including high speed copper and fibre optical structured cabling and network technology.

Engineering... power architecture

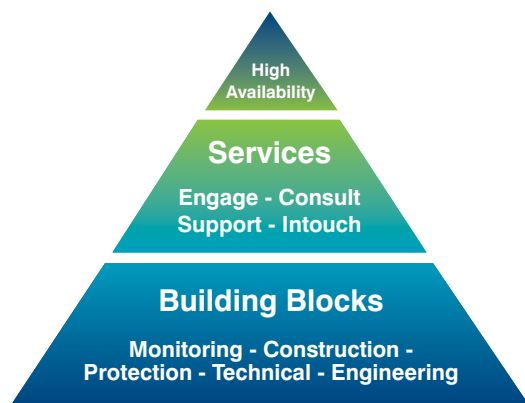
through LV switchgear, mechanical and critical distribution, PDU's, power generators, UPS systems and intelligent rack distribution

Monitoring... pro-active management and control

incorporating environmental, security and energy measurement, monitoring & management technology.

Workspace Technology consultants apply contemporary design methodologies for data centre facilities. The deployment of modular standardised building blocks eliminates the need for one time engineering, and enables the right sizing of data centre facilities.

Our approach to standardisation of designs increases reliability, reduces Mean Time to Repair (MTTR) and reduces human error. Our designs enable improved speed of deployment, provide the ability to scale, and ability to reconfigure inline with the fast changing I.T refreshes that take place during the lifetime of the data centre facility.





Construction

creating the space

Workspace Technology's Data Centre Solutions division provides comprehensive space planning, design, installation and construction services to create an effective and efficient data centre facility.

Planning

Our consultants provide expert space, layout and capacity planning to support efficient cooling, modular growth strategies combined with maximum airflow separation.

Workspace Technology ensures fundamental physical build and location criteria are addressed during the design engagement.

- Building Construction and Quality
- Physical Security
- Equipment Access
- Quality and Capacity of Utility Supplies
- Bandwidth Availability
- Geography

Workspace Technology engage with clients to ensure compliance with appropriate Building Regulations and Planning Approvals.

Traditional Build

Workspace Technology provides traditional build techniques including block work, fire rated partitions and plaster board construction. Our strategy is to provide a total solution for clients including internal joinery, ceiling systems, raised access floors final decoration and finishes to compliment a high availability environment.

Secure Modular "ModuSec" Construction

As an alternative to traditional construction methods Workspace Technology offers "ModuSec" the UK's leading data centre and server room modular construction product. The ModuSec system provides a clean and fast alternative to traditional construction techniques delivering enhanced protection for data and server equipment from Heat, Water, Smoke and Rodents.

Raised Access Floors

Workspace Technology is an approved installer for the EuroDek Raised Access Floor System. We install raised access floors to suit individual room requirements complete with aluminium grille tiles, brush seal systems, ramps steps and handrails.



Cooling

efficient cooling & airflow

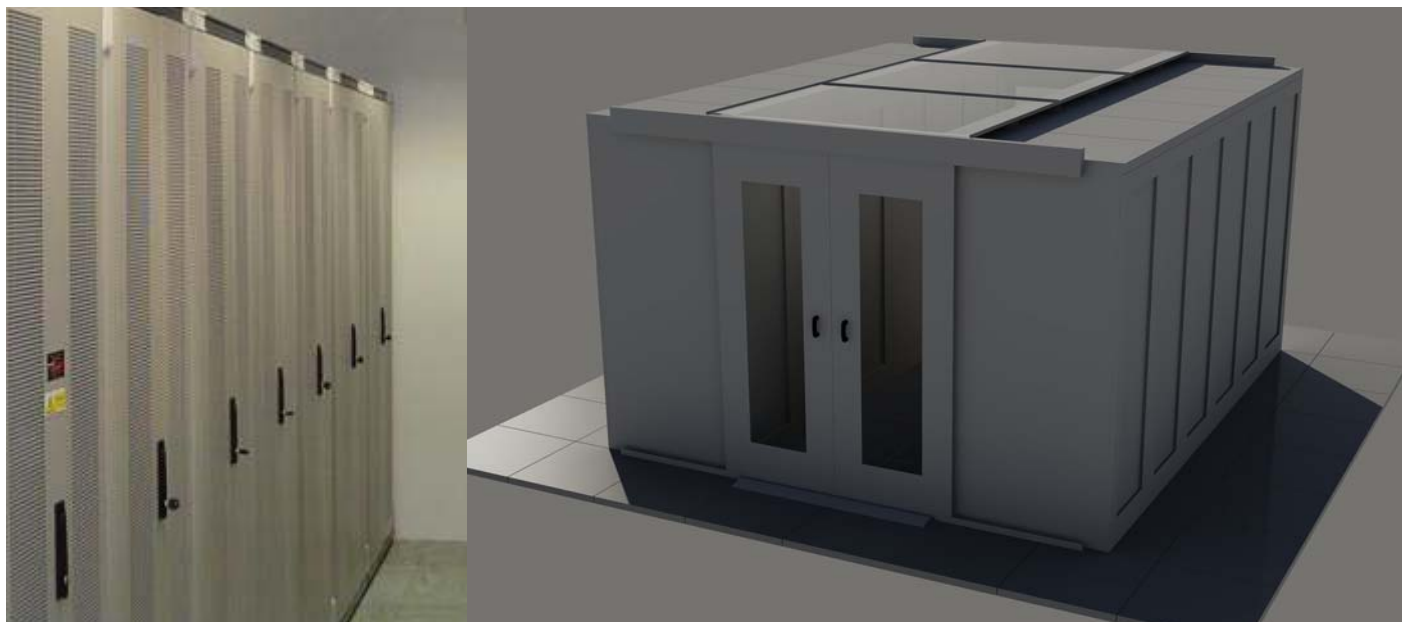
To meet the high power demands resulting from consolidation and shrinking physical size of server equipment, Workspace Technology offers a comprehensive range of cooling to suit your individual physical room and rack density requirements. Traditionally cooling represented a significant energy overhead to a data centre. Workspace Technology's drive to maximise energy efficiency through best practice is reflected in our encouragement to deploy low energy free cool technology.

Cooling Technology

We offer a comprehensive range of cooling technology to support individual client requirements. Where possible we encourage the deployment of "free cooling" to help maximise the energy efficiency of your data centre or server room environment.

Cooling Technology Options

Cooling Options	Description	Free Cooling	Kw Per Rack without aisle containment	Kw Per Rack with aisle containment
Denco Perimeter Cooling	Denco's leading range of Toscana perimeter based AC systems scale from 10Kw through to 100Kw Net Sensible.	Ambicool Glycol Drycooler Solution	4kw	8/10Kw
APC InRow Cooling	In-Row cooling solutions deliver cold air directly to the front of equipment racks reducing fan power requirements. Options include DX and Chilled Water	Chiller units can be combined with free cool drycooler systems.	10/15Kw	20/30Kw
Coldlogik - Rear Rack Cooling	Coldlogic Rear Rack cooling technology provides a cost effective and efficient solution for medium to high density rack deployments.	Chiller units can be combined with free cool drycooler systems.	20/40Kw	N/A
"FreeCool" - Direct Evaporative Free Air Cooling	Workspace Technology innovative low energy FreeCooler solution it ideal for those clients who wish to deliver the ultimate in energy performance. Standard units deliver up to 30Kw with custom systems delivering up to 500Kw Net Sensible capacity per unit.	Direct or indirect fresh air cooling as standard.	5/10Kw	15/20Kw



Cooling **efficient cooling and airflow**

We offer a range of supplemental cooling solutions including fan assisted tiles and APC's rack air distribution and air removal products to help enhance and improve airflow when appropriate.

Aisle Containment & Airflow Management

Eliminating the mixing of hot and cold air flows within a data centre helps provide better control of equipment inlet temperatures. This in turn enables cooling system temperature set points to be increased (thereby saving energy) whilst still supplying the load within recommended operating temperatures.

Benefits of Containment & Airflow Management

- Reduced CO₂ Emissions
- Reduced AC energy consumption and operating costs
- Improved PUE Room Ratings
- Improves "Green Credentials"
- Increased air-conditioning cooling capacity
- Improved "inlet" temperature control
- Reduced down time of server equipment

FlexAisle[®] from Workspace Technology is a vendor independent flexible Data Centre airflow containment solution. FlexAisle[®] provides a simple and cost effective passive method for eliminating the mixing of hot and cold airflows within a Data Centre or Server Room environment. The goal of FlexAisle[®] is to maximise the performance, uptime and life expectancy whilst reducing operating costs. Configuration options include Cold Aisle Corridor, Hot Aisle Return Plenum and Hot Aisle Containment.

Additional technology such as cabinet blanking panels, floor brush sealing and airflow products from leading manufacturers including APC, Plennafil and Koldlok further improve airflow efficiency.



Protection

mission critical environments

Today's Server Room and Data Centre's, more than ever, are under enormous pressure to maintain operations. Some companies risk losing millions of pounds with one single data centre glitch. Therefore it's not hard to believe that in the event of a catastrophic data centre fire, a company may not only loose millions but may also go out of business. Workspace Technology's Data Centre Solutions "Protection" services provide fire detection and fire suppression systems for mission critical environments.

Fire protection provides essential security against fire. Simply put, if an environment is incapable of breeding a fire then there will be no threat of fire damage to the facility. In a data centre, the main goal of fire protection system is to get the fire under control without disrupting the flow of business and without threatening the personnel inside.

- Identify the presence of a fire
- Communicate the existence of the fire to occupants and authorities
- Contain and extinguish the fire if possible

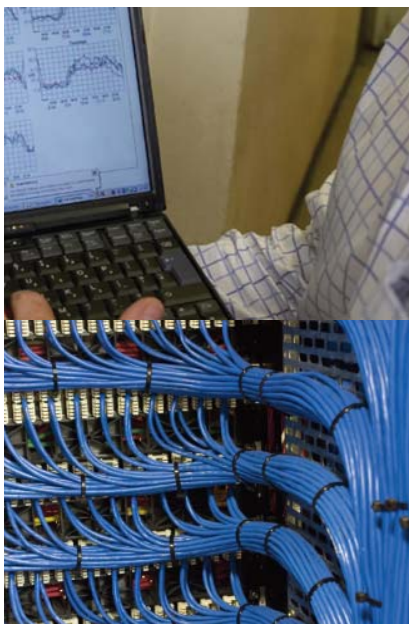
Workspace Technology's Data Centre Solutions division offers design and installation of detection and a range of

"Zero Ozone Depletion" suppression gaseous agents which can be installed dependant upon budgets and physical space availability.

Fire Suppression Options

Workspace Technology offers Very Early Smoke Detection (VESDA) systems with enhanced protection though the use of laser sampling recognising early signs of possible combustion well before any fire suppression system would be activated.

Gaseous Agent	Atmospheric Lifetime	Ozone Depletion Potential	Global Warming Potential (100 Years)
HFC-227ea (FM200)	34.2 Years	0	3220
Novec 1230	5 Days	0	1
IG-55 Prolnert	0	0	0



Technical Communications & Technology

Fuelled by e-commerce and the IP world we live in today, the Data Centre has become the most critical asset. It is truly the operations centre of your business: housing mission-critical applications, equipment and systems you need to enable every transaction, communication and task. Workspace Technology's "Technical" building block incorporates structured cabling, communications and related technical services required within data centre, communications and server room environments.

Structured Cabling

As experts within the Data Centre environment Workspace Technology is uniquely positioned to provide Data Centre and Server Room structured cabling solutions & services.

Workspace Technology design scalable Data Centre cabling infrastructure to support future growth and potentially new technologies, providing **Data Centre Performance, Density and Manageability ... Without compromise.**

Workspace Technology is one of UK's leading Belden Certified Systems Vendors. We offer a range of Cat6A (10Gig), Cat6 and fibre optical solutions fully compliant with TIE-942 recommended data centre installation practices.

Access Control

Physical security is part of data centre Infrastructure because it plays a direct role in maximising system availability. It does this by reducing down time from accidents or sabotage due to presence of unnecessary or malicious people.

Workspace Technology offers clients with options based on "what you have", "what you know", and "who you are". Systems

range from a simple lock and key to computer activated proximity card controllers and pin code devices. Combined with IP Camera monitoring a flexible approach can be designed to support client demands.

Network Technology

Bandwidth demand from client centric computer systems leads to Local Area Network (LAN) infrastructure designs based on high performance, Layer 3 Ethernet switched equipment. Workspace Technology's experienced consultants apply knowledge and best practice tools to help develop advice and execute robust network designs.



Engineering

power architecture

Next generation mission critical power systems must be adaptable to change in order to improve both availability and cost effectiveness. Workspace Technology employs a combination of standardisation, pre-engineering and modularisation to design resilient power distribution systems for the data centre.

Workspace Technology's contemporary approach to electrical installation helps reduce power consumption through modular, resilient and "right size" design. Our Data Centre Solutions division supply and install a range of LV Switchgear, mechanical and critical distribution, PDU's, power generators, UPS systems and intelligent rack distribution.

LV Switchgear & Power Distribution

Most high availability data centres use a power distribution providing dual power paths all the way to the critical loads, and most enterprise class I.T equipment offers redundant supplies and power cords. Workspace Technology will design modular distribution systems to meet capacity and availability requirements of data centre and server room facilities. Workspace Technology's experts design and install LV panel board solutions to the match the reliability and performance of the most demanding environments.

Our services include the design & build of

- LV Distribution Panel Boards
- Automatic Transfer & Bypass Switch Panels
- Standard and Intelligent Perimeter PDU's
- Mechanical & Critical Power Distribution

Uninterruptable Power Supply (UPS) Systems

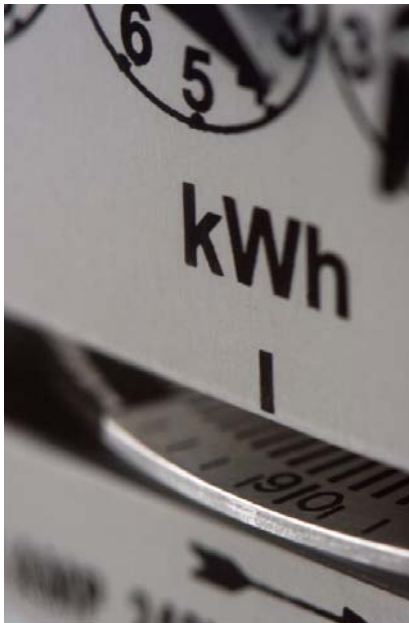
Although the public utility power distribution systems is fairly reliable in most developed countries, even the best utility systems are inadequate to meet the needs of the critical non-stop data processing operations. UPS solutions will maintain service for critical devices.

Workspace Technology offer a comprehensive range of both single and three phase UPS systems to meet individual customer demands. Single high capacity, rack mount or modular distributed UPS systems can be installed depending on the nature of the facility.

Standby Generators

Standby power generation is a key component of high availability power systems for data centres and network rooms. Information Technology systems may operate for minutes or even a few hours on UPS battery but local power generation capability is crucial to achieving high availability and continuous operation in utility power failure situations.

Workspace Technology provides generator systems that offer a flexible and varied approach to the growing needs of modern day power requirements and provide the user with a high level of security against short or prolonged mains interruptions. Our generators can be supplied for prime, standby or continuous applications, open, enclosed or sound attenuated and can be arranged for single or three phase outputs. Workspace Technology's generator options from range 10kVA to 2100kVA.



Monitoring

pro-active management & control

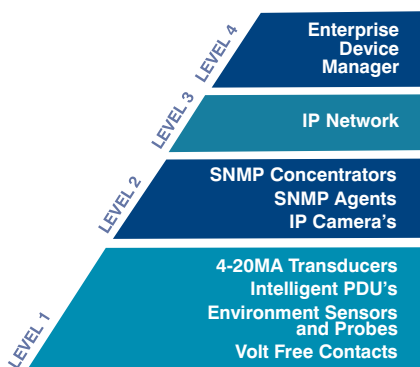
The ability to alert a business to disasters or potential performance issues at the earliest moment is paramount. If a business can prevent a disaster or “over capacity” it can safeguard against associated disruptions such as waiting for replacement systems or re-locating staff to a recovery centre. The management and monitoring of systems is essential to insuring continued availability and performance during the lifecycle of your Data Centre or Server Room Infrastructure.

Workspace Technology provides a flexible approach actively monitoring business-critical locations and the systems to facilitate continuous business availability. Data Centre monitoring systems protect a room and its valuable I.T equipment, from damage due to water leaks, high or low temperatures, smoke or dust, humidity, vandalism, theft, and many more dangerous environmental and physical factors.

Workspace Technology offers a comprehensive range of management and monitoring solutions which can be tailored to meet your site-specific requirements, as part of our Data Centre Solutions portfolio.

Management & Monitoring Solutions Deployment Architecture

Workspace Technology provides clients with a structured approach to management and monitoring solutions. Designs are based on a tiered architecture, which enables Workspace Technology to scale solutions to meet the demands of small communications rooms, server rooms and large data centre environments.



Management & Monitoring Architecture

Level 4 - Enterprise Management -

This represents an SNMP management platform, which centralises device monitoring and control and may act as an asset management application.

Level 3 – IP Network - This provides the information delivery mechanism, which is generally based on an IP LAN/WAN client intranet.

Level 2 – Device Management - Includes SNMP cards for air-conditioning systems, UPS equipment and generator sets. In addition, Environmental and Power Management SNMP Concentrators gather information for none SNMP sensors and probes.

Level 1 – Sensors & Probes -

At the lowest tier of the management architecture sits the environmental sensors and probes. These gather environmental, physical and power related information, which is relayed to concentrator devices.

This tiered architecture enables Workspace Technology to provide scalability of solutions for small and large installations alike.

Workspace Technology’s Management and Monitoring architecture is based on “best of breed” technology from a number of manufacturers including APC’s award winning Netbotz and InfrastruXure Central management platforms.





Mobile Data Centre

Portable Energy Efficient Data Centre Solution.

Workspace Technology's Data Centre Solutions division has developed a unique range of energy efficient portable "server ready" data centre solutions.

Data Centre Infrastructure represents a significant investment for any company. Unlike traditional bricks and mortar or modular systems where relocation is not possible, Workspace Technology's industry leading Mobile Data Centre allows for total portability.

The Mobile Data Centre is designed for those businesses that require the flexibility to relocate server room facilities. The system also provides a cost effective way to easily expand existing data centres and to provide both business continuity and disaster recovery solutions.

Application Summary

- Disaster Recovery and Business Continuity
- Cost Effective Data Centre Expansion
- Mobile Data Centre and Server Room Facilities

- Media and Event Based Applications
- Excellent alternative to a bricks and mortar builds
- Internet, Mobile and Telecoms Service providers for local POP systems.

Mobile Data Centre - Key Features

- "Server Ready" – pre-engineered and wired ready for instant deployment of servers
- Self contained system complete with cabinets, cooling, UPS and power distribution
- Based on Workspace Technology's "EcoDesign" principles, to reduce carbon emissions through design and technology
- Easy to deploy with minimum onsite preparation, for immediate functionality
- Options for floor standing or a "trailer styled" design for complete portability
- Modular "right size" designs.

www.mobiledatacentre.com



Providing a Service

An Interactive Experience

Workspace Technology's operational & professional services are driven by our customer experience. Throughout all stages of contact process our procedures are aligned to ensure that expectations in design accuracy, systems interpretation and installations quality are maintained.

Our service centric approach has been succinctly defined across a number of service definitions. These definitions map customer contact from project initiation through to final project sign-off and beyond extended over the lifetime of the solution. The following outlines Workspace Technology's four service definitions.

Engage... design, planning and deployment services

This represents Workspace Technology's approach to aspects of design, planning, deployment and project management services.

Consult... consultancy, audit & survey services

Consult provides professional advice on all aspects of data centre design, deployment, sizing and availability and includes a range of survey and audit services.

Support... planned and contract maintenance services

Workspace Technology offers a range of planned preventative maintenance and 24 x 365 callout service contracts to ensure critical system availability is maintained.

Intouch... online remote managed services

Provides clients with a 24x365 on-line remotely managed data centre, server room and building infrastructure services.



Commitment Quality & Safety

The expertise of Workspace Technology is associated with a quest for total quality, not just our products and services but which also extends to our employees. It is through the quest for total quality that Workspace Technology has achieved the prestigious ISO 9001 accreditation.

Workspace Technology deploys a philosophy of continual development and training across the company. The health, safety and welfare of our employees and customers is of paramount importance to Workspace Technology. The company is committed to implementing Health & Safety at Work and are an accredited CHAS approved contractor.



Business Divisions Performance and Reliability

Workspace Technology delivers clients with a competitive advantage through the design and implementation of flexible and reliable Data Centre Solutions, Building Systems, Interior Solutions and in the provision of Professional Services. This one-stop approach to “workspace technology” is applied to commercial; manufacturing and data centre, server and communications room environments.

Our solutions offering is delivered through our focused business divisions:-

Data Centre Solutions: expert energy efficient data centre, server and communications room solutions and services.

Building Systems: intelligent building infrastructure services which include Communications, Power, Security and Cooling technology.

Interior Solutions: commercial interior renovation, dilapidation and fit out services including partitions, ceiling systems, raised access floors and finishes.

Professional Services: expert knowledge within project planning, design, consultancy, training, planned maintenance, customer support and remote managed services.

Making the difference

Connecting with our clients

Workspace Technology's Data Centre Solutions division offer clients Data Centre, Server and Communications Room solutions and services which are "Energy Efficient by Design". By engaging you and taking the time to understand the business and performance related issues Workspace Technology is able to effectively address the demands of your business.

Workspace Technology welcomes this opportunity to connect with you as a valued customer. We would like to share our vision and expertise through a partnership approach. Our ability to deliver integrated, scalable, energy efficient solutions has made us the preferred choice for many public sector and commercial businesses today.

Operating throughout the UK, Workspace Technology offers clients an enthusiastic and refreshing approach, combined with teamwork that takes performance and service to new levels of excellence.

Further details of Workspace Technology's products and services can be found at www.workspace-technology.com.



Approved "Endorser" EU "Code of Conduct on Data Centre Efficiency"



APC Elite Partner
Data Centre Certified



Workspace Technology's "Commitment to help clients reduce their carbon footprint through the deployment of energy efficient technology and design".



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Creating an effective workspace environment